

Transitioning to a Next Generation Human Space Flight System

Wednesday, March 28, 2007

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Statement of
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before the
Subcommittee on Space, Aeronautics, and Related Sciences
Committee on Commerce, Science and Transportation
United States Senate

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to appear today to discuss transitioning to a Next Generation Human Space Flight System.

I, along with many of my colleagues, am a product of the first great vision to land a man on the moon and return safely to earth. The excitement of Mercury, Gemini, and Apollo captivated our attention and stirred our imaginations. As a direct result of this excitement, Aerospace engineering became my particular field of study and I was extremely fortunate to have a tremendous career with NASA for over 26 years._

I am pleased to address the issue of transition from the Space Shuttle to the new Ares/Orion launch system. It is an important issue facing us today as we approach a crossroads where the transition between space transportation systems will be critical in our ability to maintain skills and experience while training a new generation of space scientists, engineers, and processing workforce.

But before I address the transition from the Space Shuttle to the new Ares launch transportation system, it is worth reviewing previous experience with transitions of this magnitude, particularly the transition from the Apollo program and Saturn V launch vehicle to the Space Shuttle transportation system. After the Apollo moon landings ended in 1972, several small transitions, or "soft landings" occurred. Significant workforce reductions occurred both within the NASA civil service workforce and private industry. Follow-on programs did not need the levels of workforce that were required during the buildup to support the moon landings of the late 1960's and early 1970's. A leaner NASA and a leaner industry were the result.

During this transitional phase, NASA developed and operated its first space station, Skylab. And after Skylab's three missions were completed an international cooperative mission between the United States and Russia, Apollo/Soyuz, was conducted. These missions constituted "soft landings" where critical skills and experience were retained as workforce reductions and attrition occurred.

Fast-forwarding 30 years to 2007, the lessons of the Apollo/Shuttle transition are applicable today as NASA transitions from Shuttle to Ares I/Orion. Actions taken have already resulted in several "soft landings" where critical skills and experience are being directly applied to new program development. Many of the technical, skill, processing, and cost challenges have been mitigated through the utilization of proven Shuttle derived capabilities for the foundation of the Ares I launch vehicle. Critical industry skill and experience are being retained in the development of the Ares I systems.

Additionally, an Ares I test flight program is being developed that bridges the gap between the last Shuttle flight and the start of Ares I operational capability, utilizing the talents across industry and NASA's field centers. These test flights provide an avenue of transition where

critical skills and experience are captured and retained.

And just as the Skylab space station provided a bridge between Apollo and Shuttle for the retention of critical skills, I believe that the operation of the International Space Station through at least the middle of the next decade is necessary to provide a similar bridge between the Space Shuttle and future lunar missions.

But there is no doubt that the transition from the 25-plus year Space Shuttle program to the new Ares I transportation system will be a significant challenge. Resources must be allocated to allow for a safe and executable transition, providing for the safety of our astronauts as the Shuttle program comes to a close and enabling the execution of these "soft landings" as I have described. Increasing the gap between Shuttle and Ares I exacerbates the transition. The gap, in my opinion, should be minimized and resources allocated to ensure this occurs.

As industry, small and large, across this country step up to the challenge, we have the opportunity to drive down cost and to realign contracts to be much more efficient. And although this transition period will be challenging, it also presents a gateway to new opportunity as the end state vision associated with Ares I begins to evolve. People will change badges; people will step up to the challenge of being retrained; and people will aggressively seek new positions of growth provided by an expanding vision.

With a safer, more economical launch system come increased opportunities. Instead of servicing only one program, the Kennedy Space Center has the potential to be the spaceport of the future for a variety of missions--Ares I NASA missions to low earth orbit, potential Ares I commercial applications, and providing services and infrastructure for a growing commercial orbital transportation system (COTS) that NASA is facilitating. The evolution of the space industry is continuing and Ares I opens up potential new opportunities for industry to develop. The opportunity exists for the transition of workforce skills and experience at the KSC to support a broader KSC role.

It is also evident that the KSC launch site is becoming an extension of the manufacturing centers where Ares I launch vehicle element refurbishment and assembly and Orion spacecraft assembly are major activities in addition to integrated vehicle processing and launch/recovery operations. The KSC workforce will have opportunities to transition from Shuttle contracts to Ares I contracts to support these Ares I/Orion assembly activities.

As we continue to pursue the vision for space exploration and transition to a new space transportation system, a new generation of scientists and engineers will be inspired, as was my generation 30 years ago. The transition that I have addressed will certainly be a challenge, but it also represents significant opportunities for the future. With the necessary resources, I am confident that NASA and industry will rise to the challenge and safely guide us to the next great adventure.